Rostosky Ridge Road Collapse of CCR Pile, Forward Township, Allegheny County, Pennsylvania: A Fugitive Dust Issue

Implicated Activity: Piling for beneficial use.

Description: Fly ash and "bottom ash" were removed from Allegheny Energy's Mitchell Power Plant and dispose of at River Hill Road in Forward Township to be used by the PA DOT for the maintenance of River Hill Road, and specifically as structural material for construction of the roadway, its embankment, and adjacent slope. A collapse of the ash pile was triggered by a break in the water main under River Hill Road. On January 25, 2005, thousands of tons of fly ash slid down a hillside and flowed into a creek and through a neighborhood located on Rostosky Ridge Road.[1] Approximately nine homes, a business (restaurant), and a mile of the creek were directly impacted by the landslide, which deposited large piles of fly ash in residential yards, flower beds, culverts, play areas, around garages and along the creek banks. Cleanup immediately following the slide in 2005 included removal and disposal of 1,500 tons of ash from the public parking lot at Gallatin Sunnyside Park, the commercial and affected residential properties on Rostosky Ridge Road, as well as from roadways, culverts, and creek banks. During the first week after the landslide, residents used township equipment to remove some of the fly ash from driveways, walkways, parking lots, and roadways, generally w/o the use of any protective gear. An uncovered dump truck transported the fly ash to a nearby ball field. The local fire department helped with wetting the streets to keep down dust levels.

Following this initial removal effort, PADEP contracted to remove the fly ash from the affected neighborhood yards, roadways, creek banks, and ball field. From January 2006 through August 2006, the DEP removed 40,000 tons of ash from the embankment, eliminating any risk of another release of fly ash from the slide area. When feasible, the PADEP contractor removed the fly ash with a vacuum truck and small equipment such as skid-loaders, mini-excavators, and backhoes. Hand tools such as rakes, shovels, and hoes were also used to remove the fly ash. The affected areas near the creek banks and culverts were flushed with water, allowing the fly ash deposits to enter the creek water. Nearly five years after the coal ash slide incident, work was expected to begin to remove the final remains of that slide.[2]

Status: Inactive (a one-time incident.)

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[1] The slide occurred when the old coal ash embankment adjacent to River Hill Road collapsed and temporarily dammed the stream at the embankment's base. When the ash dam failed, the ground broke loose and water, slurry and tree branches rushed down the hill onto Rostosky Ridge Road, just off Route 136. Some water and debris from the slide spilled onto Route 136 near Rapp's Restaurant.

[2] Final fly ash clean-up begins - Pittsburgh Tribune-Review, January 18, 2010. http://www.pittsburghlive.com/x/valleyindependent/news/s_662812.html#ixzz1mDyrFKOx

Impact Summary: Following the landslide, residents stated that they were ill with a variety of flu-like symptoms, including sore throat, cough, fever, nausea, fatigue, diarrhea, and headaches.

Study: Based on a petition for a public health evaluation of the fly ash landslide, in March 2005, ATSDR conducted a preliminary review of available data, on the basis of which ATSDR classified the landslide site as a potential health hazard and made several recommendations, among which were removal of the remaining fly ash from the affected neighborhood and post-removal confirmatory sampling. ATSDR also agreed to complete a formal written health consultation evaluating all available data following the post-removal confirmatory sampling.[3]

Eleven samples were measured for PM10 in outdoor air. Because samples were not necessarily collected during fly ash removal activities, results may not represent peak exposure levels. The maximum PM10 24-hour average air concentration was 36.4 $\mu g/m^3$, which is below EPA's PM10 24-hour average NAAQS of 150 $\mu g/m^3$. It is not known what levels of PM2.5 were associated with measured PM10 levels. However, even assuming all of the particulate matter was <2.5 microns, the measured levels are also below EPA's PM2.5 24-hour average NAAQS of 65 $\mu g/m^3$. The limited air data suggests exposures to PM10 levels are not likely to be harmful to human health.

However, past exposures to fine particulate matter immediately following the landslide and during removal activities may have been at levels of health concern. Many epidemiologic studies have found consistent associations between exposure and harmful health effects for short-term, or acute, exposures (usually measured in days) to fine particulate matter. Acute exposures to fine particulate matter may also aggravate pre-existing respiratory conditions in sensitive individuals. Although measured PM10 levels from the one residential yard were below NAAQS values, the air measurements were not necessarily collected during peak exposure periods when residents were shoveling and removing fly ash from their yards. ATSDR considers it plausible that fine particles in the fly ash may have acted as a respiratory irritant in exposed adults and children during that time.

Following the landslide, fly ash could have been brought into vehicles and homes on the feet of family members and pets. In fact, during a February 2005 site visit, ATSDR staff witnessed fly ash dust and indoor tracking of dirt into homes and cars in the affected neighborhood. Suspended fly ash particles in outdoor air could have entered a home through indoor-outdoor air exchange. A young child playing on a home's floor will have the maximum opportunity for ingestion, inhalation, and dermal exposure to dust.
An environmental services company engaged by legal counsel representing the affected residents conducted an interior home sampling investigation. In February, March, and April 2005, interior dust wipe samples from the surface of carpets, countertops, tables, windowsills,

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[3] ATSDR Health Consultation: *Coal Fly Ash Landslide, Forward Township, Allegheny County, Pennsylvania*, June 1, 2006: http://www.atsdr.cdc.gov/HAC/pha/CoalFlyAshLandslide/CoalFlyAshLandslideHC060106.pdf

fans, furnace filters, and vacuum cleaner bags were collected by residents and sent for arsenic analysis. Arsenic was detected in some of the samples. Follow-up sampling in July 2005 also detected arsenic in dust wipe samples. Detections of arsenic in dust wipe samples are an indication that arsenic was, at some point, distributed throughout the home and was accessible to the occupants.

Results of the analysis of the urinary arsenic levels measured indicate that the participants were not exposed to high levels of arsenic two to three days prior to their urine collection. However, the urinary sampling time does not represent the time of peak exposure levels. None of the arsenic concentrations in toenails or fingernails exceeded the published reference ranges. However, because of the length of time required for nail growth, the results from the nail samples did not reflect peak exposure times at the site.

In July 2005, the Allegheny County Health Department issued a study, based on information and samples collected in March-April of that year.[4] The study tested for arsenic in urine, hair, and nail samples collected from potentially affected residents between February 5 and early April, 2005.

Overall, the biological testing of both studies was conducted to address community concerns about arsenic exposures following the landslide event. However, the timing of the biological testing does not allow these community concerns to be addressed.

Regulatory and Legal Response: In October 2006, residents along Rostosky Ridge Road and a portion of Rainbow Run Road filed a lawsuit in Allegheny County Court in an effort to force PADEP to clean the site. The suit claimed the PADEP violated the Clean Streams Act, the Air Pollution and Control Act and the Hazardous Sites Cleanup Act and created a private and public nuisance.[5]

The state maintained that tests previously conducted by the Allegheny County Department of Health found low levels of arsenic - consistent with an area where coal is burned to produce electricity. The agreement[6] called for more than $3 million in claims and damages to be paid to the commonwealth and to 25 residents on or near Rostosky Ridge Road. The commonwealth received approximately $1.8 million for cleanup costs and monitoring, with the rest going to the residents for compensation and damages.

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[4] *Results of the Health Investigation Following Fly Ash Contamination in Forward Township, Allegheny County, Pennsylvania:* http://academics.rmu.edu/faculty/short/research/arsenic/ACHD-Arsenic-2005.pdf.

[5] The suit also named as defendants: Allegheny Energy, owner of the fly ash that had been generated at the company's Mitchell Power Station; the state Department of Transportation, for using fly ash to stabilize River Hill Road and maintaining the hazardous substance within its right-of-way and/or embankment supporting the road; the Municipal Authority of Westmoreland County (MAWC), because its water main ruptured, bringing the fly ash hillside down into the neighborhood; and Weavertown Environmental Group, because of alleged "negligent remediation at the site, which caused further harm."

[6] September 15, 2009: http://www.newspapers.com/newspage/36312281/

References:

Barbara J. Diess comment to the 2007 NODA docket: EPA-HQ-RCRA-2006-0796-0424.

Health Consultation: Coal Fly Ash Landslide, Forward Township, Allegheny County, Pennsylvania: ATSDR, June 1, 2006.